University of Victoria – Mechanical Engineering
Posting for CUPE 4163 Specialist Instructional (TA)

Term of appointment:
TAs are expected to be available from the beginning of the semester (Jan 4, 2027) and assist with marking the final examination (exam period is April 10-26, 2027).

Hourly Rate: **$34.72**

ENGR 141 – Engineering Fundamentals Instructor: **F. Firmani**

Special Skills or Other Requirements:

- Facilitate student led tutorials by assisting and guiding student groups as required in session
- Be confident public speakers and work with the instructors to develop presentations of the tutorial problem sets
- Mentor 1st year engineering students at drop-in seminar sessions
- Work well within a large TA team and independently coordinate tasks with colleagues
- Have excellent interpersonal and communication skills
- Have a good background in statics

MECH 150 – 3D Printing Prototyping Design Instructor: **A. Brice**

Special Skills or Other Requirements:

- Candidates should have extensive knowledge of FDM and SLA printing
- Strong understanding of design for 3D printing including tolerancing, printable geometries, connections/fits, and part orientation
- Knowledgeable with SolidWorks and/or Blender, 3D scanning, mesh manipulation, and 3D slicing software
- Previous experience/comfortable instructing labs (drafting, or 3D printing desirable)

MECH 220 – Mechanics of Solids I Instructor: **M. Amereh**

Special Skills or Other Requirements:

- Completion of an upper-level undergraduate or graduate level course in solid mechanics or continuum mechanics

MECH 240 - Thermodynamics Instructor**:** **S. Gharehkhani**

Special Skills or Other Requirements:

- Strong background and knowledge in thermodynamics
- Excellent interpersonal and communication skills
- Must be able to take initiative and be flexible

TA Positions for Spring 2027

MECH 330 - Intro to Mechanical Vibrations Instructor: **B. Nadler**

Special Skills or Other Requirements:

- Solid knowledge of rigid body dynamics, multi-degree of freedom vibrations, and relevant mathematical background (ODES, Laplace transformations, Fourier analysis, vector and matrix algebra).
- Proficiency with Matlab and Simulink software.
- Duties include: 1. preparing solutions to, consulting with students on, and marking assignments, including Matlab/Simulink component; 2. running lab sessions and marking lab reports; 3. assisting in the marking of midterm and final exams

MECH 335 – Theory of Mechanisms Instructor: **F. Firmani**

Special Skills or Other Requirements:

- Candidates for the TA position(s) are asked to have an appropriate background in Mechanisms, which involves linkage analysis (position, velocity and acceleration), static and dynamic force analysis, and cam design.
- Candidates are expected to be familiar with software for mechanism design like Working Model 2D.
- At least one laboratory experiment will be assigned to each TA, who will assist students during a three-week period.

MECH 345 – Mechanics of Fluids Instructor: **C. Valeo**

Special Skills or Other Requirements:

- Candidates should have a strong background in fluid mechanics.
- Previous experience in running labs is an asset
- Previous experience teaching Thermofluidic courses is an asset

BME 350/BME 351 – Biomedical Engineering Design Instructor: **D.Olender**

Special Skills or Other Requirements:

- Excellent interpersonal and communication skills are essential.
- Candidates must have demonstrated experience in Engineering Graphics and Drawing. Candidate will be asked to provide tutorials on engineering drawing and graphics.
- Candidates must have demonstrated experience in Engineering Design.

MECH 360 - Design of Mechanical Elements Instructor**:** **N. Dechev**

Special Skills or Other Requirements:

- Experience with mechanical design and machine elements
- Good interpersonal and communication skills for partial supervision of the MECH 360 Design Project
- Experience with Gear Train Design, shafts, bearings and fasteners

TA Positions for Spring 2027

MECH 380 - Automatic Control Engineering Instructor: **L. Roy**

Special Skills or Other Requirements:

- Solid knowledge of control theory and related mathematical background (Laplace transformations, matrix algebra and analysis, complex variable theory; transfer-function based analysis and design; frequency-characteristics based analysis design; state-space analysis and design).
- Proficiency with Simulink software. Duties include consulting with students on Simulink applications and correction/evaluation of three students' projects.

MECH 400A – Capstone Design Proposal Instructor: **D. Olender & S. Roberts**

Special Skills or Other Requirements:

- Experience with Engineering Design
- Experience with machine shop manufacturing, software and electronics
- Previous experience setting design criteria/specifications
- Excellent communication – verbal and written
- The ability to understand various complex problems.
- The ability to interact & guide students to provide project direction for students.

MECH 400B – Capstone Design Project Instructor: **S. Roberts**

Special Skills or Other Requirements:

- Technical competency interacting with groups of final year engineering undergraduates.
- The TA must be available to attend and participate during the weekly class.
- Excellent communication (oral and written) and organizational skills.
- Must have experience in engineering design and have completed and undergraduate mechanical engineering design courses.
- Experience with programming, microcontrollers, and machine shop practice.

MECH 410/520 - Computer-Aided Design and Engineering Instructor**:** **S. Liu**

Special Skills or Other Requirements:

- Previously taken MECH 410/520 or equivalent course required
- Knowledge of Siemens NX CAD/CAE (FEA/CFD) and ANSYS required
- Knowledge of Solidworks desirable

TA Positions for Spring 2027

BME 420/520– Human Factors & Usability Engineering for Medical Devices Instructor: **T. Carswell**

Special Skills or Other Requirements:

- Previously taken BME 420
- Experience as a Teaching Assistant (TA)

MECH 422 - Advanced Materials and Processes Instructor: **S. Tekumalla**

Special Skills or Other Requirements:

- Candidates should have a strong background in materials/manufacturing.
- Previous experience in assisting with group projects is an asset.
- Duties include consulting with students and evaluation of the students' assignments, projects, and term papers.

MECH 431 – Advanced Fluid Mechanics Instructor: **P. Oshkai**

Special Skills or Other Requirements:

- Previously taken MECH 531 or experience with fluid mechanics required
- Previous experience being a TA for Advanced Fluid Mechanics

MECH 441 – Ship Hydrostatics and Dynamics Instructor: **C. Valeo**

Special Skills or Other Requirements:

- Ideal candidate will have previously taken courses or similar experience

MECH 442 – Heating, Ventilation, and Air Conditioning Systems Instructor: **L. Amlani**

Special Skills or Other Requirements:

- Ideal candidate will have previously taken course or similar experience

MECH 447/542 – Energy Systems Instructor: **A. Rowe**

Special Skills or Other Requirements:

- Ideal candidate will have previously taken courses or similar experience
- Familiar with energy and electrical systems.
- Preferably have been a teaching assistant for the course before

TA Positions for Spring 2027

MECH 448/580 A01/BME 448/548 – Intro to Musculoskeletal Biomechanics Instructor: **TBD**

Special Skills or Other Requirements:

- Ideal candidate will have previously taken courses or similar experience
- Experience with kinematic analysis and spatial transformations is an asset
- 2D and 3D force analysis using first principles and homogenous transformations
- Understanding of stress and strain relationships and formulae
- Strong skills in Matlab

MECH 450D – Pulp and Paper Technology Instructor: **B. Dalpke**

Special Skills or Other Requirements:

- Previously having taken Pulp and Paper Technology course is an asset but not required

MECH 458/554 – Mechatronics Instructor: **TBD**

Special Skills or Other Requirements:

- Hands-on experience with C programming
- Atmel microprocessor programming
- Previously taken MECH 458/554

MECH 475 /MECH 538/ASE 504 – Aircraft Design Instructor: **R. Marques**

Special Skills or Other Requirements:

- Successfully completed this course (or an equivalent course in aircraft design).
- Demonstrated knowledge of aircraft conceptual design, including aerodynamics, propulsion, aircraft performance, and stability.
- Strong communication, mentoring, and leadership skills, with the ability to facilitate weekly project meetings and provide constructive guidance to groups of students.

MECH 481/515/BME 481/515 – Biomaterials + Tissue Engineering Instructor: **K. Valente**

Special Skills or Other Requirements:

- Previously taken MECH/BME 481 or MECH/BME 515.

MECH 492/540 – Transport Phenomena Instructor: **H. Struchtrup**

Special Skills or Other Requirements:

- Ideal candidates have interest and background in transport theory and/or Thermofluids

TA Positions for Spring 2027

MECH 493 – Design of Thermo-Fluid Systems Instructor: **S. Gharehkhani**

Special Skills or Other Requirements:

- Strong background in Thermofluids and design
- Preferably have been a teaching assistant for the course before
- Responsibilities will include handling and covering the quiz material on pipes, and marking quizzes and exams

MECH 495/535 – Computational Fluid Dynamics Instructor: **P. Oshkai**

Special Skills or Other Requirements:

- Ideal candidate will have previously taken courses or similar experience

BME 499 – Design Project Instructor: **TBD**

Special Skills or Other Requirements:

- Excellent communication and organizational skills.

BME 561 – Biomanufacturing Automation and Process Optimization Instructor: **J. Phelps**

Special Skills or Other Requirements:

- Strong background in process automation, including the integration of appropriate sensors and control strategies
- Background in bioprocessing and regulatory standards for biologics (e.g., ICH, Health Canada, FDA)
- Strong communication and organizational skills to support student teams and provide feedback on assignments and project work

MECH 580 A02 – Nanomaterials for Biomedical applications Instructor: **S. Fardindoost**

Special Skills or Other Requirements:

- A basic understanding of chemistry and materials science, preferably with an interest in nanomaterials and their biomedical applications.
- Familiarity with the applications of nanomaterials in biomedical fields, such as biosensors, tissue engineering, drug delivery, and medical imaging, would be an asset.
- Good communication skills and the ability to support students with course concepts and assignments.

TA Positions for Spring 2027

MECH 594/595/695 – Seminar Instructor: **K. Ahmadi**

Special Skills or Other Requirements:

- Candidate will co-ordinate seminars, introduce speakers, collect feedback, prepare the next term's schedule, and maintain attendance spreadsheet.

MECH 601 – Engineering Analysis Instructor: **C. Valeo**

Special Skills or Other Requirements:

- Thorough understanding of applied engineering mathematics

ASE 503 - Aircraft Composite Structures and Materials Instructor: **R. Marques**

Special Skills or Other Requirements:

- Strong knowledge of solid mechanics, mechanics of materials, and structural analysis, with particular focus on the theory of elasticity, and stress/failure analyses.
- Familiarity with the internal structure layouts of lifting surfaces and fuselages is a strong asset.
- Practical proficiency with FEM software, such as ABAQUS or ANSYS, to support students in their modeling assignments/project.
- Experience in the design, manufacturing, or experimental testing of composite structures is highly valued.